

### **DETAILED ACTION**

Claims 57 and 58 are pending.

#### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 March 2008 has been entered.

#### ***Claim interpretation***

2. the claims require a combination of concentrated solutions of ferric chloride, phosphoric acid, and aluminum chlorohydrate, optionally in combination with water and/or polymeric coagulants EPI-DMA polyamine or the cationic polymer p-DMDAAC. Since the amount of the concentrates and the water are unspecified, the concentrations only limit the upper limit of ferric chloride, phosphoric acid, and aluminum chlorohydrate in the compositions and read on any concentrations of said materials above zero up to the parts of said concentrated values.

Polymeric coagulants EPI-DMA polyamine or the cationic polymer p-DMDAAC are optional and thus not required.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waldmann, US 4,566,986. Waldmann '986 (abstract; column 5, lines 28-36; column 6, lines 10 et seq; columns 7 and 8; column 10, lines 31-49; column 11, lines 3-9 and 15-24; examples and claims) discloses inorganic reaction products of iron and/or aluminum salts.

Waldmann '986 differs from the claims in the characterization of the materials as the claimed product-by-process limitations and an exemplified combination as claimed.

Waldmann '986 (column 10, lines 31-49) teaches the use of phosphorous compounds including phosphoric acid, phosphorous acid, and mono-and dibasic phosphate salts which act as good catalyst and stabilizing agents for the reactions. Waldmann '986 column 11, lines 3-9 and 15-24) teach aluminum hydroxy chlorides are major intermediates of the product forming reactions. Waldmann '986 (examples) sets

forth basic aluminum chloride structures, which when defined in terms of 2 equivalents of  $\text{Al}^{3+}$  provide the remaining (OH) and Cl equivalents within the claimed ranges. See example II (column 12, lines 57) as an example, which discloses  $\text{Al}_4(\text{OH})_4\text{Cl}_8$ . While not clearly the same species, said disclosed species is structurally related to those claimed and would be expected to produce the same or related products. Waldmann '986 further teaches the products may further be diluted with phosphoric acid.

Waldmann '986 further defines concentrations for the various species. Merely modifying process conditions such as concentration that are noted to be product determining does not involve an inventive step absent a showing of criticality.

Kuo et al ( abstract, examples and claims) teaches flocculating agents made by the combination of basic aluminum chloride with  $\text{FeCl}_3$ . Kuo et al differs in the further addition of a phosphorous compound.

6. Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waldmann, US 4,566,986, in view of Kuo et al., US 4,362,643, as applied to claims 46-60 above, and further in view of Hassick et al., US 4,800,039, Rose et al., US 4,655,934, and Waldmann, US 4,902,779.

Waldmann '986 (abstract; column 5, lines 28-36; column 6, lines 10 et seq; columns 7 and 8; column 10, lines 31-49; column 11, lines 3-9 and 15-24; examples and claims) discloses inorganic reaction products of iron and/or aluminum salts.

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Waldmann '986 further defines concentrations for the various species. Merely modifying process conditions such as concentration that are noted to be product determining does not involve an inventive step absent a showing of criticality.

Kuo et al ( abstract, examples and claims) teaches flocculating agents made by the combination of basic aluminum chloride with  $FeCl_3$ . Kuo et al differs in the further addition of a phosphorous compound.

Waldmann '986 (column 3, lines 26 et seq) teaches the conventional use of aluminum chloride as aluminum hydroxy chlorides which are commercially available inorganic flocculating agents. Waldmann '986 (column 4, lines 31-45) characterizes patentees compositions as improvements over the conventional products.

Hassick et al (columns 2, 3, and examples) teaches the combination of aluminum chlorohydrate and certain cation polymeric flocculants to be synergistic and includes as the cationic polymer p-DMDAAC.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the cationic polymer p-DMDAAC in combination with the Waldmann '986 inorganic flocculating compositions since the prior art recognizes synergism with other related inorganic flocculating agents. The ordinary skilled artisan at the time of the invention would have expected at least an additive result based on the combination.

Rose et al (column 2, lines 10 et seq and examples; particularly example 6) teaches it is conventional to add the combination of aluminum hydroxy chlorides and EPI-DMA polyamine and an alkaline earth metal salt as flocculating compositions. Rose et al makes no distinction between the different types of calcium salts.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the polymer EPI-DMA polyamine and  $\text{CaCl}_2$  in combination with the Waldmann '986 inorganic flocculating compositions since the prior art recognizes their advantageous combination with other related inorganic flocculating agents.

Waldmann '779 (claims) teaches water soluble inorganic-organic alloy polymer adduct compositions comprising inorganic flocculants which are the same or

substantially the same as those disclosed in Waldmann '986 in combination with cationic polymers. Waldmann '779 (column 18, example 21, Table II) specifically discloses the combination of cationic polymers and alkaline earth metal salts.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to employ inorganic-organic polymer adducts or Waldmann '986 inorganic flocculating compositions since the prior art recognizes their advantageous combination of polymer adduct and related inorganic flocculating agents.

Furthermore, it is generally *prima facie* obvious to use in combination two or more ingredients that have previously been used separately for the same purpose in order to form a third composition useful for that same purpose. In re Kerkhoven, 626 F.2d 846, 205 USPQ 1069 (CCPA 1980); In re Pinten, 459 F.2d 1053, 173 USPQ 801 (CCPA 1972); In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971); In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960). As stated in Kerkhoven and Crockett, the idea of combining them flows logically from their having been individually taught in the prior art.

7. Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boussely et al, US 5,759,401, in view of Hassick et al., US 4,800,039, Rose et al., US 4,655,934, and Waldmann, US 4,902,779.

Boussely et al (column 3, line 37 et seq) discloses  $AlCl_3$ ,  $FeCl_3$  and aluminum phosphates as coagulating agents. Boussely et al (column 3, lines 56-57 and claim 60) explicitly disclose the use of two or more of the coagulating agents.

Boussely et al differs from the claim in the at least three coagulant combination claimed.

Boussely et al teaches all the components of applicants' blend as coagulants and teaches the use of mixtures of two or more coagulants. Boussely et al (column 3, lines 58-60) teaches the further combination of organic polymers such as polyacrylamides with the inorganic coagulating agents. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ a mixture of the art known coagulants as taught in the Boussely et al reference.

Boussely et al differs from the claims in the combination of the inorganic flocculating agents with a polymeric flocculating agent, p-DMDAAC or EPI-DMA polyamine.

Hassick et al (columns 2, 3, and examples) teaches the combination of aluminum chlorohydrate and certain cation polymeric flocculants to be synergistic and includes as the cationic polymer p-DMDAAC.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the cationic polymer p-DMDAAC in combination with the Waldmann '986 inorganic flocculating compositions since the prior art recognizes synergism with other related inorganic flocculating agents. The ordinary skilled artisan at the time of the invention would have expected at least an additive result based on the combination.

Rose et al (column 2, lines 10 et seq and examples; particularly example 6) teaches it is conventional to add the combination of aluminum hydroxy chlorides and EPI-DMA polyamine and an alkaline earth metal salt as flocculating compositions. Rose et al makes no distinction between the different types of calcium salts.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the polymer EPI-DMA polyamine and  $\text{CaCl}_2$  in combination with the Waldmann '986 inorganic flocculating compositions since the prior art recognizes their advantageous combination with other related inorganic flocculating agents.

Waldmann '779 (claims) teaches water soluble inorganic-organic alloy polymer adduct compositions comprising inorganic flocculants which are the same or substantially the same as those disclosed in Waldmann '986 in combination with cationic polymers.

These references are combinable because they teach flocculating agents and compositions. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ inorganic-organic polymer adducts or Waldmann '986 inorganic flocculating compositions since the prior art recognizes their advantageous combination of polymer adduct and related inorganic flocculating agents.

Furthermore, it is generally *prima facie* obvious to use in combination two or more ingredients that have previously been used separately for the same purpose in order to form a third composition useful for that same purpose. In re Kerkhoven,



*supra*; In re Pinten, *supra*; In re Susi, *supra*; In re Crockett, *supra*. As stated in Kerkhoven and Crockett, the idea of combining them flows logically from their having been individually taught in the prior art.

### ***Response to Arguments***

8. Applicant's arguments filed 27 March 2008 have been fully considered but they are not persuasive.
9. Applicants assert the amendment obviates the rejections applied to previous and canceled claim 51. The remaining issues appear above. All the claimed elements are individually known as coagulating and flocculating agents as shown in the art. The claims are drafted in product-by-process format and the concentration of the active agent in solution is set forth in the claims but the claims are silent regarding the concentration of the solution employed in the compositions. Said concentrations are therefore not deemed to distinguish over the prior art.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on Monday to Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**/Daniel S. Metzmaier/  
Primary Examiner, Art Unit 1796**

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